**Age and Sex Prediction**

Able to detect the sex and age period of a person acuratly

# Purpose of this document

The purpose of this document is to define a proposed project with enough information for an informed decision to be made on whether to approve the project to proceed.

This document is the **responsibility of the Project Team.**

Project approval is dependent upon the document being completed and reviewed by the teacher of the project course.

* If the project is approved, it can then begin planning and execution,
* If the project is not approved, the **Project Team** can review the project and resubmit for reconsideration.

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# **1. Project Definition Information**

|  |  |
| --- | --- |
| Project Name: | Amaar Barkhadle |
| Project Team: | N/A |
| Mentoring Teacher: | Mr Griffin |
| Proposed Project Start Date: | 30 July due to requiring project approval and if need be project reconsideration. |

# **2. Project Idea**

The revised project idea is to utilize machine learning techniques in order to be able to accurately predict a person sex and age bracket given an input image.

# **3. Project Purpose**

The future applications and uses for this project can be extremely important in the fields of biometrics, video surveillance, crowd behavior analysis, social understanding. However currently, the project provides a humorous look on the accuracy of the model between family and friends.

**4. Team Member Capabilities**

Identify the capabilities of each member of the team in the table below.

Some examples are shown.

|  |  |
| --- | --- |
| **Team Member** | **Capabilities** |
| Amaar Barkhadle | Knowledge of Python, Previous projects on Image classification applications, machine learning, Neural Networks, Data analysis with matplotlib, Multivariate and Bivariate linear Regression, Knowledge of creating user interfaces. |

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# **5. Project Outcomes/Requirement Objectives**

***List the outcomes that the project is required to bring about.***

|  |  |
| --- | --- |
| **Outcome** | **Description** |
| ***Detect sex and age for any input image*** | *Prediction capable of accurately predicting any input image. (Single Face)* |
| ***Is able to input images of any size.*** | *In the graphical user interface, the user will have the ability to input any image regardless of size.* |
| ***Able to input images of URL and From Hard drive*** | *The Graphical user interface is adaptable and has the ability to make predictions using URL’s as well.* |
| **User friendly graphical interface** | Graphical interface which both introduces the project and also simplifies the process of detection for the user. |
| **A trained model based on data** | Can train a model based on training data |
| **Make classification based on trained model** | Can predict sex and age based on the trained model. |

# **6. Initial Scope of the Project**

*Define the initial areas that the project outcomes/requirements encompass to ensure that they are relevant to the project need being addressed.*

|  |  |
| --- | --- |
| **In Scope** | **Out of Scope** |
| *Predict sex and age* | *Predict ethnicity* |
| *User friendly graphical interface* | *Ability to input multiple images at once for detection* |
| *Allowing the input of any colored image and any sized image* | Ability to analyze more than once face at a time. |
| Allowing the input of URL’s |  |

# **7. Time Objective**

*The timeframe in which the project’s end products must be delivered.*

**The timeframe for this project is: 13 weeks**

**8. Parties Involved**

List all of the stakeholders and third parties that are likely to be involved in the project:

Some examples are shown.

|  |  |
| --- | --- |
| **Party** | **Involvement** |
| *Website users* | *Reviewing and implementing the project through the user interface* |
| *Mr Griffin* | *Review project definition document* |

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# **9. Constraints**

*List any constraints that the project has,*

|  |  |
| --- | --- |
| **Constraint** | **Impact on Project Success**  **(High/Med/Low)** |
| One significant constraint is the size of the data set. In order t actually train the dataset I’m required to use google collaboration which I’m not familiar with becoming a huge constraint on the project. | **High** |
| Quality and Accuracy of data | **Mid** |

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# **10. Feasibility**

In light of the above information, describe how feasible is it for this project to achieve its objectives:

|  |  |
| --- | --- |
| **Skill Required** | **Resource with skill / capability** |
| *Data Cleaning* | *Basic Python* |
| *Model training + Classification* | *Tensorflow* |
| *User Interface* | *Streamlit* |
| *User documentation / Blog Posts* | *Google Docs* |
| *Graph accuracy* | *Matplotlib* |

Feasibility Scale: **80%**

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# **11. Roles & Responsibilities**

|  |  |
| --- | --- |
| **Team Member** | **Roles / Responsibilities** |
| *Amaar Barkhadle* | ***Data Engineer***   * *select appropriate datasets and data representation models*   ***Machine Learning Engineering***   * *Design machine learning systems* * *Research and implement required ML algorithms* * *Develop machine learning application according to project requirements*   ***Documentation*** |

# **11. Initial Issues**

List any known issues (something known/has happened that will impact the project) that the project will face, with a brief one-line description for each issue.

|  |  |
| --- | --- |
| **Issue** | **Description** |
| *Hardware issues* | *The dataset is massive with a storage space of 2gb meaning if i want to work on it at home and at school i would need to find my way around it.* |
| *Google Collaboration Issues* | *Learning Google Collaboration is a difficult yet eye opening procedure which I enjoy.* |
| *Lack of time* | *Ongoing assignments and continuous blog posts would require lots of organization in order for me to work on the project according to the timeframe.* |

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# **12. Risks**

List any risks (something that may happen and the project may need to address) below that may impact the project, with a brief one-line description for each risk.

|  |  |  |  |
| --- | --- | --- | --- |
| **Risk** | **Description** | **Impact of**  **Risk**  **(L M H)** | **Mitigation / Reduction** |
| *Team sickness* | *Team member becomes sick/ill for extended period of time* | *H* | *Request an extension given I am the only team member.* |
| *Loss of project* | *Current version of project gets corrupters/lost* | *H* | *Weekly backup the project* |

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# **14. Deliverables, Timeframes and Dependencies**

*Identify all deliverables and expected durations and completion dates for deliverables. It is important you identify any dependencies that may impact on the production of a deliverable by the internal deadline.*

Timeframe estimate: 13.5 weeks

|  |  |  |  |
| --- | --- | --- | --- |
| **Deliverable** | **Duration** | **Completion Date** | **Dependencies** |
| *Dataset selection, Data cleaning* | *1 Weeks* | *End Week 1* | *None* |
| *Model Creation/ Training* | *4/5 Weeks* | *Mid Week 4* | *Dataset cleaning completed* |
| *Model Implementation* | *3 Weeks* | *Mid Week 7* | *Model Training/ Completion is done* |
| *User interface* | *2 Weeks* | *Mid Week 9* | *Model implementation is completed* |
| *Testing* | *2 Week* | *MId Week 11* | *User interface, Model implementation is completed* |
| *Documentation and Power Points* | *1 Week* | *End Week 12* | *Testing complete* |